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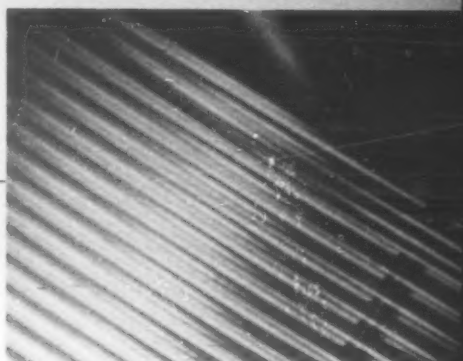
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Research & Development

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'Drawing' stronger synthetic fibers
LBOs: Friend or foe of research?

R&D

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INTERNATIONAL JOURNAL OF RESEARCH, DEVELOPMENT, AND QUALITY ASSURANCE

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R&D

BUSINESS

LBOs: Friend or foe of industrial research?

NEW INFORMATION points the finger at leveraged buyouts (LBOs) for decreasing the amount of R&D spending in acquired companies. In its annual Survey of Industrial Research and Development, the National Science Foundation cites a 12.8% reduction in R&D spending between 1986 and 1987 for companies involved in LBOs and a 5.3% cut in overall takeovers.

Other companies in the survey that were not involved in restructurings averaged a 5.4% increase in R&D spending.

There has been little to substantiate

the effect of buyouts on R&D, but critics believe that the massive amount of debt financing created by a company during such a buyout severely limits all major investment, including that for R&D.

In an extensive study of 300 takeovers (through 1985) for the NSF and the National Bureau of Economic Research, UC-Berkeley economics professor Bronwyn Hall found meager evidence that acquisitions affected R&D activity. While the majority of the companies she studied were not LBOs (most LBOs are in private, non-

traded issues, and specific data are unavailable), she contends that "the private [LBOs have] nontechnical R&D, and vice versa."

Hall, who admits that her data are several years old, does not dispute the NSF study. There was a substantial change in the leverage (debt-equity) ratio for takeover companies in the final years of her study, prompting her to examine leverage ratios in more detail in a follow-up study, which she expects to complete in early 1990.

The Brookings Institution's Margaret Blair agrees with the NSF report, stating that while the number of restructured companies in the NSF study may be small, as a class the companies account for 90% of total

Do leveraged buyouts hurt the flow of research?

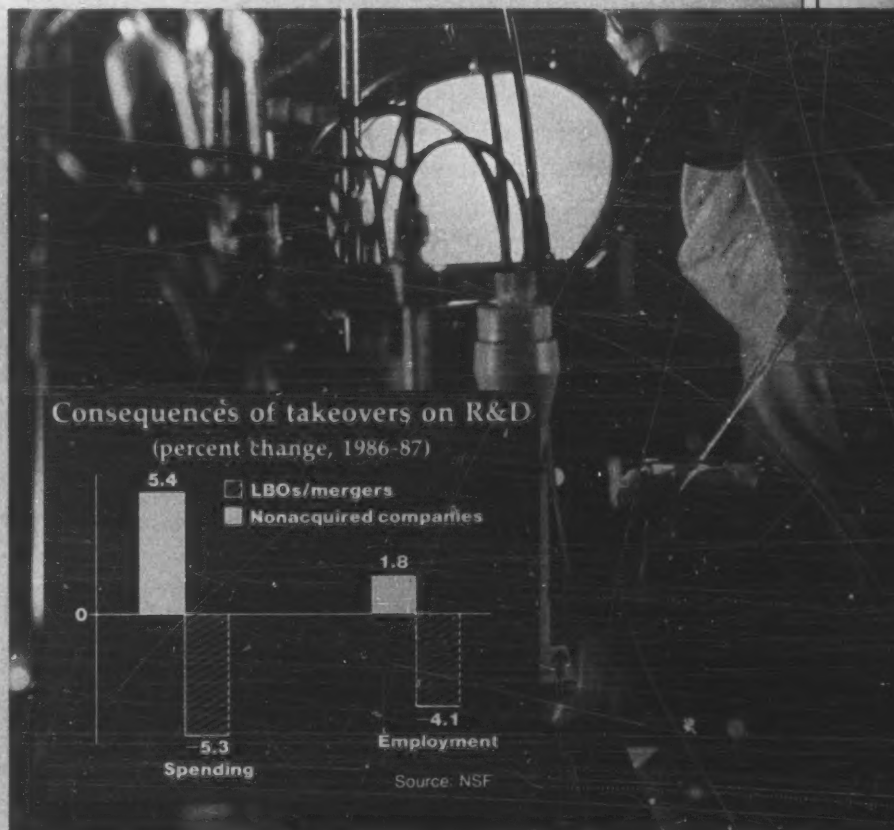
AN OFTEN overlooked aspect that all takeovers have on R&D activities is the loss of research continuity. Even if R&D funding and manpower levels remain stable, if research facilities are not consolidated, and if most administrative and staff personnel stay in place—all of which rarely happens in a takeover—new ownership almost always has its own ideas on the directions that R&D should take.

Richard Mateles, formerly vice-president of R&D for Stauffer Chemical and now a vice-president at IITRI, has experienced this situation on several occasions.

When Stauffer went through five ownership changes in three years, Mateles found that the first new owner followed a normal transition but made a "major change in direction to apply more R&D to consumer products. Personnel were reassigned, and it took more than a year to obtain initial results."

Successive owners made more changes, which caused R&D personnel to again reorient their priorities. During each episode it took several months to return to normal productivity levels.

Stauffer's initial three R&D groups each were sold to separate companies. Two units remained well directed despite the changes, while one lost key personnel. □



Takeovers result in reduced spending in research and cuts in R&D staff, a new National Science Foundation study of 200 companies reports.

BUSINESS

industrial R&D expenditures. "Economic data two to five years from now will reveal the current rate of investment [for LBOs] to be cut way back," she says.

Blair bases current LBO activity on the high real cost of investment that has been in effect for the past decade. "In a microeconomic, or short-term, sense, LBOs may be the proper business investment response for a company with available cash, but in a macroeconomic sense it eliminates the R&D and capital investment needed for long-term high growth." □

NSF compares U.S. and Japan on R&D spending

A NEW National Science Foundation study shows that the U.S. and Japan spend comparable amounts on research and development. But in Japan, a greater share of R&D funding comes from industry.

"In Japan, there's more self-funded industrial R&D," says Maria Papadakis, the NSF science resources analyst who wrote the report. In the

U.S., she explains, much of the research that industry performs is funded by the government, particularly for defense work.

According to "The Science and Technology Resources of Japan: A Comparison With the United States" (NSF Report 88-318), Japanese industrial R&D expenditures increased at an average annual rate of 11% from 1965 to 1985, the last year for which figures are available. Company-funded R&D in the U.S. increased at only a 5% rate during that period.

In some sectors the spread was even greater. For example, Japan's ceramics industry outspent its American counterpart by 62% for research in 1985. In fabricated metals, Japanese companies spent 17% more on R&D than did those in the U.S. In iron and steel, the difference was 192%.

"There is a perception that the Japanese are outstanding in materials, and these data are further evidence that they're putting a lot of effort into that area," says Papadakis.

One factor that could slow Japan's R&D capability is a likely drop in scientists and engineers due to demographic changes. The U.S. has been facing a similar shortfall, but made up for it by "importing" researchers from abroad, something the Japanese may be reluctant to do. □

Composites industry to expand research

MORE COMPOSITES and plastics companies plan to expand their R&D budgets in 1989 than in 1988 (64% vs 57%). More than half of those surveyed in Owens-Corning's annual survey of the industry, "Trends '89," believe that their companies will increase R&D spending an average of 20%. More than half also spent more on R&D than was budgeted for 1988.

The development of new materials continues to be the area where more than half of the R&D money will be spent. But materials development dropped from being the most important issue for company executives due to a dramatic increase in the importance of health and safety issues.

"One reason for this increase," cites Robert DeGange, Owens-Corning's vice-president for industrial materials, "may be the ruling by OSHA to limit the permissible exposure levels of chemicals in the manufacture of composites." Another factor could be the EPA's requirement for full disclosure of the use or release of toxic chemicals.

Partnerships between composites companies have proliferated, with 90% of the survey respondents stating that they had developed cooperative research arrangements. More than a third of these partnerships are with foreign firms, even though 85% of composite sales are domestic.

The survey also revealed that for those already involved in development partnerships, joint R&D increased from 76 to 86% in 1988. For those entering into new partnerships, the joint R&D rate increased from 41 to 59%. □

The top 20 companies: A Japanese view

1. IBM	U.S.
2. Glaxo	UK
3. Nippon Tel.	Japan
4. DEC	U.S.
5. Brit. Tel.	UK
6. Ford	U.S.
7. Exxon	U.S.
8. Bell South	U.S.
9. Royal Dutch	Holland, UK
10. General Motors	U.S.
11. Toyota	Japan
12. Philip Morris	U.S.
13. Tokyo Elec. Pwr.	Japan
14. Brit. Pet.	UK
15. DuPont	U.S.
16. NYNEX	U.S.
17. Hanson	UK
18. Bell Atlantic	U.S.
19. Cray Research	U.S.
20. Ameritech	U.S.

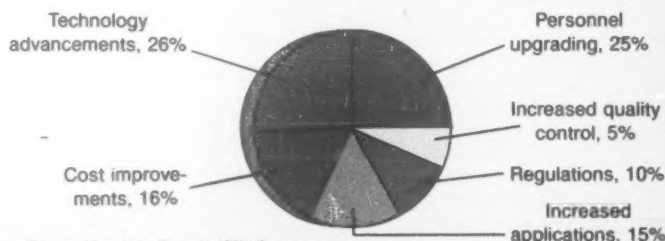
Japanese rank IBM as the world's top company

AN ANNUAL SURVEY conducted by Nihon Keizai Shimbun Inc. (*Japan Economic Journal*) ranks IBM as the best company in the world for the third consecutive year. The top 100 companies (with sales of more than \$90 million) included 60 from the U.S. (down 10 from 1987), 15 from the UK (up 4), and 11 from Japan (up 4).

Rankings for the survey are based on 16 factors including asset base, profitability, stability, and financial performance. Japan's Nippon Telegraph & Telephone scored high on its huge assets, although its financial performance was rated lower than that of IBM and Glaxo.

High technology companies continued to be highly ranked, but several companies in basic industries also claimed that status this year, indicating economic expansion to more-industrial sectors. □

What factors will affect industry growth?



Source: Owens-Corning "Trends '89" Survey

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